Plans to create a pan-European electricity grid as part of the common energy market face a number of challenges before they can be realised.

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In March 2011 the European Council formulated plans to create a common European energy market by 2014. However, as **Lidia Puka** *and* **Kacper Szulecki** *write, a real common energy market will also require a pan-European electricity grid, with improved bilateral links between European countries. They note that despite presenting obvious benefits for participating states, attempts to strengthen cross-border connections between countries such as France and Spain, or Germany and Poland, have faced a number of challenges. One of the primary problems in this respect is that EU level governance can only offer part of the solution, with Member State governments largely responsible for improving their own electricity links with neighbouring states.*

In planning the near future for Europe's energy sector, the European Commission (as well as a number of experts) has encouraged politicians and the public to 'think big' and 'think European'. The important, supposedly revolutionary change that we are about to witness, which is meant to bring a variety of benefits for all sides, is the creation of the common European electricity market by the end of 2014. To achieve this we need a Europe-wide alignment of laws and governance measures, as well as the actual physical grids in place. The latter component is even more important in the context of the idea of a pan-European 'supergrid' which – in an ideal world – would allow for free trade in electric energy from Portugal to Estonia. It would also allow for the growing capacity of renewable energy sources to be used more efficiently as it could be more effectively tailored to geographically-determined peak demand periods, as well as varying weather conditions.

And yet it seems that there is incompatibility between two levels of governance. The drive for legislative convergence between the Member States comes from the European Commission, through appropriate new governance instruments and fora of cooperation, such as the Agency for Cooperation of Energy Regulators (ACER), and mechanisms that define the missing grid links, like Trans-European Energy Networks – Electricity (TEN-E) guidelines. The ultimate goal is 'market coupling', that is developing the necessary financial governance instruments (i.e. spot markets) to handle electricity trade between regional price zones.

At the same time, the construction of grids connecting the Member States remains a challenge. This is somewhat surprising, since the grids necessary to create physical linkages have already been defined. One reason is that grid construction depends largely on national-level actions, decisions and incentives. Member States remain the primary site of governance and decision making in the energy sector and they are unlikely to let go of any competences in that area. Are we then facing a paradoxical situation where the goals are in a different domain than the means we possess to realise them?

Once it comes down to building the actual transmission lines and interconnectors, the real game begins. The decision-making process is quite complex. First, a project needs to be significant enough to be given an investment priority by the transmission system operators (TSOs). Second, the TSOs need to have sufficient financial capacities at hand. Direct European funds from the 'Connecting Europe Facility' will only be available for a limited number of projects, chosen from among the already short-listed 'projects of common interest'.

Third, national legislation needs to be tailored to smoothly handle social and environmental opposition, and regulate ownership rights. Tensions between a sufficient level of public participation, democratic oversight, environmental

impact control, and the need to actually push necessary investments forward is a key problem many Member States are now struggling with. Last, the parties involved – governments, TSOs, regulators, consumers, energy exchanges, and even energy producers – need to trust one another and display an interest in project completion, which is much easier said than done.

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It is hard to find a better test case in which neighbourly cooperation (or lack thereof) has had an impact on the success of EU energy policy than the border between Poland and Germany. The necessity of expanding cross border interconnectivity between the two states had been recognised as early as 2006 by the European Commission and the TSOs. Initially this stemmed from physical problems: unpredictable intermittent energy sources (i.e. wind farms in Northern Germany) had disturbed the grid operation with 'surplus' energy and unplanned electricity flows.

Since 2007 the proposals to 'strengthen' the grid and enhance trade potential have included the conversion of an existing 220 kV double circuit interconnector between the Polish station at Krajnik and the German Vierraden to 400 kV, and installing phase shifters on this line and on the other link between Mikulowa and Hagenwender. Soon afterwards the idea emerged of constructing a third 400 kV interconnector, mostly for imports to Poland between Plewiska and Eisenhuttenstadt. Six years later, however, the process of cooperation remains at an early stage of development. That is a visible delay, but Poland and Germany are still nowhere near the length of interconnector expansion process that Spain and France have reached – three decades and counting.

Why are we facing difficulties if this seems to be a win-win situation? Is the national cost-benefit ratio that much different from the European perspective? With the EU's 2014 deadline for market coupling, new incentives for cooperation might appear soon. Furthermore, Poland is facing an electricity generation deficit by 2016, while the appetite for electricity exports in Germany could grow with an increased deployment of renewables. Over the last two years, renewables have helped Germany achieve a positive trade balance by generating a surplus of electricity, which has then been exported to other countries.

Whether these will be strong enough incentives to overcome the apparent grid-lock in bilateral electricity transmission projects and solve the associated administrative problems remains to be seen. The interests of the various parties involved, and which actors will ultimately benefit from these projects in the long-term is also a matter of debate, as is the role of energy security in these processes. These are just some of the issues which require further study as Europe attempts to move towards the kind of pan-European 'supergrid' which has been proposed.

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